THE STATE WATER PROJECT

Planned, designed, constructed and operated by the California Department of Water Resources (DWR), the State Water Project (SWP) is the largest state-built, multi-purpose, user-financed water project in the United States.

The SWP, spanning more than 600 miles from Northern California to Southern California, includes 34 storage facilities, 20 pumping plants, four pumping-generating plants, five hydroelectric power plants, and approximately 700 miles of canals, tunnels, and pipelines.

The SWP's main purpose is to provide a water supply – that is, to divert and store water during wet periods and distribute it to areas of need during dry periods in Northern California, the San Francisco Bay area, the San Joaquin Valley, the Central Coast, and Southern California. Other project purposes include flood control, power generation, recreation, fish and wildlife enhancement, and water quality improvements to the Sacramento-San Joaquin Delta.

The $1.75 billion bond issue of 1960 provided initial funding for the SWP and payments received from 29 contracting agencies are paying off the bonds. These 29 urban and agricultural water agencies have long-term contracts for the delivery of SWP water. Approximately 70 percent of SWP water goes to urban users and 30 percent to agricultural users. These SWP contracting agencies are repaying the cost, including interest, of financing, building, operating, and maintaining the SWP water storage and delivery system.

Cover:
Air surge tanks located at Polonio Pass Pumping Plant.

COASTAL BRANCH AQUEDUCT

STATISTICS

Pumping Plants	Plant Capacity*
Las Perillas	461
Badger Hill	454
Devil's Den	134
Bluestone	134
Polonio Pass	134

** cubic feet per second*

California Department of Water Resources' Mission...

To manage the water of California, in cooperation with other agencies, to benefit the state's people and protect, restore, and enhance the natural and human environments.

FOR MORE INFORMATION

Visit DWR'S Web site at
http://www.water.ca.gov
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CALIFORNIA'S STATE WATER PROJECT

Coastal Branch Aqueduct

COASTAL BRANCH AQUEDUCT

Central Coast's Link to the State Water Project

Completed in 1997, the Coastal Branch Aqueduct extends from Kettleman City in Kings County to Vandenberg Air Force Base in Santa Barbara County and was constructed in two phases. It consists of 143 miles of pipeline, five 7.5 megawatt capacity pumping plants, a state-of-the-art water treatment plant, and four water storage tanks.

Phase I completed in 1968, includes two pumping plants and a 15-mile canal extending from the California Aqueduct near Kings-Kern county line westerly to Devil's Den. Phase II, constructed from 1993 to 1997, consists of a 101-mile long DWR Coastal pipeline from Kern County to Vandenberg Air Force Base in Santa Barbara County and 42-mile long Central Coast Water Authority (CCWA) pipeline from Vandenberg Air Force Base to Lake Cachuma.

Supplying as much as 47,816 acre-feet of water a year, Coastal Branch supplements supplies from area reservoirs and groundwater basins. San Luis Obispo County has an agreement for 4,830 acre-feet a year and Santa Barbara County for 42,986 acre-feet.

Coastal Branch expands the Central Coast's water portfolio by helping it more effectively handle droughts, groundwater overdraft, and water marketing and transfers on a countywide and statewide basis. The region now has a more flexible water supply consisting of both local and imported sources.

HISTORY

For decades, Santa Barbara and San Luis Obispo counties depended on water stored in local reservoirs and pumping from groundwater basins. As demand rose, groundwater pumping increased, resulting in groundwater overdraft and increasing the possibility of seawater intrusion into aquifers. Reservoirs ran dry in droughts. Local water managers looked for the day when they could draw on another water source to supplement local water supplies.

Faced with strict cutbacks in water use, bone-dry reservoirs, and overpumping of groundwater due to the drought of 1987 to 1992, residents decided to connect to the State Water Project's California Aqueduct by completing the Coastal Branch Aqueduct. Although Santa Barbara and San Luis Obispo counties had joined the State Water Project in 1963, the connection to the SWP was not completed until Phase II of Coastal Branch.

In 1991, voters served by many Santa Barbara County water suppliers approved financing for local facilities. San Luis Obispo and other Santa Barbara County suppliers also agreed to participate in the project. The CCWA was formed in Santa Barbara County to finance, build, and operate local treatment and conveyance facilities.

Completed in 1996, Polonio Pass Pumping Plant is the third plant lifting water to the summit of Polonio Pass.

Local water purchasers are funding the entire project cost of about $575 million for the Coastal Branch and for the local treatment plant and extension. Through their payments for the water, the water users reimburse CCWA and the State Water Project for all costs, including construction and operation.

JOURNEY OF WATER

Water for the Central Coast travels more than 400 miles from the Sierra Nevada watershed. Released from Lake Oroville, the water moves down the Feather and Sacramento rivers more than 100 miles to the Sacramento-San Joaquin Delta. Then, it is pumped into the California Aqueduct for a 185-mile journey south to the beginning of the Coastal Branch.

Las Perillas Pumping Plant, located one mile from the California Aqueduct, lifts water from the aqueduct for delivery through the first 15 miles of the Coastal Branch. Located three miles downstream from Las Perillas Pumping Plant, Badger Hill Pumping Plant provides the second lift.

After traversing the first section, known as Phase I of the Coastal Branch, SWP water is delivered to Devils Den and Berrenda Mesa water districts.

As the water surmounts the steep Temblor Range, it begins its journey along Phase II of the Coastal Branch, where Devil's Den, Bluestone, and Polonio Pass pumping plants are located.

The three pumping plants lift water 1,500 feet through a buried 57-inch pipeline to the Polonio Pass Water Treatment Plant in San Luis Obispo County. Producing up to 43 million gallons of drinking water per day, the plant uses electronically controlled systems to operate flocculation, sedimentation, filtration, and disinfection processes.

The treated water then enters a pipeline, which drops it nearly 1,000 feet to the floor of the Cholame Valley. It passes through three tunnels, under rugged Shedd and Calf canyons near Santa Margarita and into the hills southeast of the city of San Luis Obispo.

Water is moved by pressure and gravity. The diameter of the pipeline gets progressively smaller as it travels near the cities of Arroyo Grande, Nipomo, and Santa Maria, then terminating and narrowing to 42 inches where it ends at a storage tank at Vanderberg Air Force Base in Santa Barbara County.

From this location, the pipeline links to the CCWA's buried 42-mile long pipeline, which ends at Lake Cachuma in Santa Barbara County. A pump station near Santa Ynez pumps the water the last eight miles to the lake. The bulk of the water is received by cities and communities in Santa Barbara County. About 10 percent is delivered to San Luis Obispo County.

DWR operates the Coastal Branch facilities up to the Polonio Pass Water Treatment Plant, then CCWA operates Coastal Branch from there to Lake Cachuma. The fiber optic cable running along the entire length of the pipeline is part of the project's automated monitoring and control system that allows technicians to monitor and operate the facilities around the clock.

PLANNING TO CONSTRUCTING THE ROUTE

With a 143-mile buried pipeline resting five feet below the surface, the project had several challenges, including safeguarding 18 animal species, minimizing surface trenching damage to scenic landscape and sensitive stream environments, and constructing a pipeline across the San Andreas Fault.

It was a big challenge to construct a pipeline through environmentally sensitive portions of California, while minimizing impacts to scenery, wildlife, and residents.

After preparing feasibility studies, hearing public comments, and producing the environmental impact report, a preferred route avoiding several wetlands and minimizing impacts to wildlife, vegetation, and cultural resources, was determined. To minimize surface trenching damage to scenic landscape and sensitive stream environments, tunneling was done under certain streams and through hillsides.

DWR, CCWA, and State Fish and Game specialists monitored all construction work to ensure compliance with environmental regulations. The ecological communities along the route included dozens of sensitive plant and animal species ranging from the San Joaquin kit fox to the burrowing owl and red legged frog. As settlements and burial sites were revealed, archeologists documented each site and, along with local tribal groups, closely monitored construction.

Since the pipeline crosses the San Andreas Fault, designers located the line above the ground and fitted it with flexible joints to allow the pipeline to move instead of shearing during an earthquake. State-of-the-art equipment monitors seismic movement along the entire route. In case of a pipeline rupture, operations can be stopped quickly to make repairs and reduce water loss.

DWR and CCWA committed to restoring land and waterways disturbed during the construction of Coastal Branch. Topsoil was set aside and replaced after trenching was completed. Erosion control methods were used to minimize stream sedimentation and loss of topsoil. More than 60,000 acorns were collected and planted as part of the revegetation work. Revegetation efforts began during the construction and continued for five years.

Top to Bottom:
Badger Hill Pumping Plant, which is part of Phase I, is located three miles downstream from Las Perillas Pumping Plant. Coastal Branch Aqueduct's Phase II consists of 101-mile long pipeline from Kern to Santa Barbara counties. Built underground, Devil's Den Pumping Plant has a small forebay to regulate the amount of water conveyed.